APPENDIX B

STATEMENT OF WORK

STATEMENT OF WORK
Nepera Chemical Company Site
Hamptonburgh, Orange County, New York

I. WORK TO BE PERFORMED

The objectives of the work (hereinafter "Work," as defined in Section IV of the Consent Decree to which this Statement of Work (SOW) is attached) to be conducted at the Nepera Chemical Company site (the Site) are to:

- prevent exposure of human and ecological receptors to contaminated soils;
- remediate contaminated soils and achieve soil cleanup objectives;
- minimize the migration of contaminants from soils to groundwater;
- prevent or minimize potential, current, and future human exposures including inhalation of vapors and ingestion of groundwater contaminated with volatile and semi-volatile organic compounds; and
- ultimately restore groundwater to levels which meet New York State Groundwater and Drinking Water Quality Standards once the entire site remediation is accomplished.

These objectives shall be met through implementation of the remedy selected in the Environmental Protection Agency's (EPA's) Record of Decision (ROD) for the Site issued on September 28, 2007, attached as Appendix A to the Consent Decree. The Settling Defendants shall finance and perform the Work in accordance with the Consent Decree, the ROD, and this SOW, including all terms, conditions and schedules set forth herein or developed and approved hereunder.

The major components of the Selected Remedy for the Site are:

- the development of a remedial design program to provide the details necessary for the construction and monitoring of the remedial program;
- the excavation of Site soils within the former lagoons, placement of the soils into a biocell, and treatment of the soils with contaminants of concern (COCs) at levels which exceed New York State Department of Environmental Conservation (NYSDEC) soil cleanup objectives;
- the treatment of soils located in the biocell using soil vapor extraction and biological degradation technologies to reach target cleanup levels;

- backfilling of the excavated areas of the Site which are not utilized in the construction of the biocell, using clean fill (which can include on-site soils related to the excavation) meeting NYSDEC soil cleanup objectives;

- bioremediation of the COCs in Site groundwater following the removal of source area soils. The Remedial Design (RD) will assess the groundwater aquifer to determine areas to be targeted for the introduction of oxygenating compounds to facilitate bioremediation through enhancement of the indigenous microbial population. At a minimum, the RD will provide for the introduction of such compounds into the excavated area of the former lagoons;

- implementation of a long-term groundwater monitoring program to verify that the concentrations and the extent of the groundwater contaminants are declining. Results of the long-term groundwater monitoring will be used to evaluate the effectiveness of the remedy and to assess the need for additional treatment, including applying additional injections/applications of oxygenating compounds or the expansion of areas in the groundwater aquifer where such compounds are to be applied;

- establishing institutional controls in the form of an environmental easement/restrictive covenant that will at a minimum require: (a) restricting excavation or other activities that would interfere with constructed remedies unless the excavation or other activities are in compliance with an EPA-approved site management plan (SMP); (b) restricting new construction at the Site unless an evaluation of the potential for vapor intrusion is conducted and mitigation, if necessary, is performed in compliance with an EPA-approved SMP and (c) restricting the use of groundwater as a source of potable or process water unless groundwater quality standards are met. When EPA determines that soil and groundwater standards have been met and sustained, institutional controls will no longer be necessary or applicable to the Site;

- establishing a SMP which would be developed to address soil and groundwater at the Site and would provide for the proper management of all Site remedy components post-construction, including the institutional controls discussed above, and will also include: (a) monitoring of Site groundwater to ensure that, following remedy implementation, the groundwater quality improves; (b) provision for any operation and maintenance required of the components of the remedy; (c) periodic certifications by the owner/operator or other person implementing the remedy that any institutional and engineering controls are in place; and (d)

an evaluation of the need for further enhancements to bioremediation and/or other components of the remedial actions;

- establishing engineering controls consisting of fencing and sign posting to prevent inadvertent exposure to Site contaminants by the local populace; and

- development of a contingency plan to provide for a wellhead treatment for the Village of Maybrook wells and or private wells on an interim basis pending further consideration of groundwater treatment alternatives to meet groundwater treatment standards, in the event that monitoring should indicate that the Village of Maybrook public water supply wells and/or private wells have been impacted by the Site-related contaminants above health-based levels.

II. PERFORMANCE STANDARDS

The RD shall be designed to achieve compliance with the Performance Standards, which shall include and be consistent with the requirements set forth in the ROD. The RD shall also be designed to achieve compliance with all legally applicable and relevant and appropriate requirements (ARARs) as set forth in the ROD.

III. PROJECT SUPERVISION/MANAGEMENT: SUPERVISING CONTRACTOR AND PROJECT COORDINATOR

Supervising Contractor

The RD, Remedial Action (RA), and any other technical work performed by Settling Defendants pursuant to the Consent Decree shall meet any and all requirements of applicable federal, state and local laws and be performed under the direction and supervision of a qualified licensed professional engineering firm. Within twenty (20) calendar days after the lodging of the Consent Decree, Settling Defendants shall notify EPA, in writing, of the name, title, proposed responsibilities and qualifications of the Supervising Contractor. All plans and specifications shall be prepared under the supervision of, and signed/certified by, a licensed New York professional engineer. Selection of the Supervising Contractor shall be subject to approval by EPA.

Project Coordinator

Within twenty (20) calendar days after the lodging of the Consent Decree, Settling Defendants shall notify EPA, in writing, of the name and title of the Project Coordinator who may be an employee of the Supervising Contractor. The Project Coordinator shall be responsible for the day to day management of all Work to be performed pursuant to the Consent Decree. The Project Coordinator shall have adequate technical and managerial experience to manage all Work described in this Statement of Work and under the Consent Decree. The Project Coordinator shall be knowledgeable at all times about all matters relating to activities regarding the RD and RA. The Project Coordinator shall be the primary contact for EPA on all matters relating to Work at the Site and should be available for EPA to contact during all working days. The Project Coordinator shall not be an attorney.

IV. PRE-REMEDIAL DESIGN AND REMEDIAL DESIGN ACTIVITIES

The RD activities to be performed in the implementation of the selected remedy for the Site include, but are not limited to, the following:

A. Sampling may be necessary at the Site during RD and/or RA excavation activities to characterize the extent of contaminated material that needs to be removed and placed in the biocell to satisfy the RA objectives. The sampling will include testing for contaminants for which EPA has established cleanup goals.

B. Development of plans and specifications for the removal of contaminated soils and their placement in the biocell.

C. Development of plans and specifications for the treatment of soils located in the biocell using soil vapor extraction and biological degradation treatment technologies to reach target cleanup levels.

D. Development of plans and specifications to backfill excavated areas.

E. Development of plans and specifications for the performance of air monitoring during construction/remedial activities at the Site to ensure that air emissions resulting from the activities meet applicable or relevant and appropriate air emission requirements.

F. Development of plans and specifications for the bioremediation of the COCs in Site groundwater following the removal of source area soils. This may include groundwater modeling to assist in the placement of injection and monitoring wells

and treatability studies to determine the number of injections, chemical usage, and well spacing necessary to achieve the cleanup objectives.

G. Development of plans and specifications for the performance of long-term groundwater monitoring. In addition to verifying that the concentrations and extent of groundwater contaminants are declining, the monitoring program will also be used to assess the need for modifications (i.e., additional injections/applications of oxygenating compounds) to the remedy.

H. Development of an SMP, for operation and maintenance (O&M) of the Site remedy, or enhancements of the remedy, as necessary.

I. Development of plans to implement the institutional and engineering controls identified in the ROD as necessary in the performance of the Site remedy.

J. Development of a contingency plan to implement wellhead treatment for the Village of Maybrook wells and/or private wells on an interim basis, pending further consideration of groundwater treatment alternatives to meet groundwater treatment standards, in the event that monitoring should indicate that the Village of Maybrook public water supply wells and/or private wells have been impacted by the Site-related contaminants above health-based levels.

V. REMEDIAL DESIGN WORK PLAN

Within seventy-five (75) days of the date on which Settling Defendants receive written notification from EPA of an authorization to proceed, Settling Defendants shall submit a detailed RD Work Plan for the design of the selected remedy to EPA for review and approval. The RD Work Plan shall provide for the collection of all data needed for performing the necessary RD activities.

The Work Plan shall comply with CERCLA and relevant EPA guidance, including the EPA document entitled *Guidance on Oversight of Remedial Designs and Remedial Actions performed by Potentially Responsible Parties*, (OSWER directive 9355.5-01, EPA/540/g-90-001), dated April 1990 and shall be in conformance, *inter alia*, with the *Superfund Remedial Design and Remedial Action Guidance*, dated June 1986, and other relevant EPA guidance documents.

The RD Work Plan shall include plans and schedules for implementation of RD tasks, and shall include, but not be limited to, the following items listed in V.A.C. below:

A. Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) shall be prepared consistent with EPA *Requirements for Quality Assurance Project Plans for Environmental Data Operations*, (EPA QA/R-5, March 2001), and *Guidance for Quality Assurance Project Plans*, (EPA QA/G-5, EPA/240/R-02/009, December 2002), and subsequent amendments to such guidelines. The QAPP shall also be consistent with the *Uniform Federal Policy for Implementing Quality Systems* (UFP-QS), EPA-505-F-03-001, March 2005 or newer, *Uniform Federal Policy for Quality Assurance Project Plans* (UFP-QAPP), Parts 1,2 and 3, EPA-505-B-04-900A, B and C, March 2005 or newer, and other guidance documents referenced in the aforementioned guidance documents. Amended guidelines shall apply only to procedures conducted after such notification. The QAPP shall include the following elements:

1. A detailed description of the sampling, analysis, and monitoring that shall be performed during the RD and RA phase, consistent with this SOW, the ROD, and the Consent Decree. At a minimum, the QAPP shall provide a plan for sampling soils to define the specific limits of the excavation for placement into the biocell.

2. All sampling, analysis, data assessment, and monitoring shall be performed in accordance with the guidance provided on EPA Region 2 Quality Assurance Homepage (http://www.epa.gov/region02/desa/hsw/sops.htm) or an alternate EPA-approved test method, and any updates thereto and the guidelines set forth in the Consent Decree. All testing methods and procedures shall be fully documented and referenced to established methods or standards.

3. The QAPP shall also specifically include the following items:

   a. An explanation of the way(s) the sampling, analysis, and monitoring will produce data for the RD phase;

   b. A detailed description of the sampling, analysis, and testing to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling;

   c. A map depicting sampling locations; and

   d. A schedule for performance of specific tasks.

4. In the event that additional sampling locations and analyses are utilized or required, Settling Defendants shall submit to EPA an addendum to the QAPP for approval by EPA.

5. The QAPP shall address the following elements:

Project Management

a. Title and Approval Sheet
b. Table of Contents and Document Control Format
c. Distribution List
d. Project/Task Organization and Schedule
e. Problem Definition/Background
f. Project/Task Description
g. Quality Objectives and Criteria for Measurement Data
h. Special Training Requirements/Certification
i. Documentation and Records

Measurement/Data Acquisition

j. Sampling Process Design
k. Sampling Methods Requirements
l. Sample Handling and Custody Requirements
m. Analytical Methods Requirements
n. Quality Control Requirements
o. Instrument/Equipment Testing, Inspection, and Maintenance Requirements
p. Instrument Calibration and Frequency
q. Inspection/Acceptance Requirements for Supplies and Consumables
r. Data Acquisition Requirements (Non-Direct Measurements)
s. Data Management

Assessment/Oversight

t. Assessments and Response Actions
u. Reports to Management

Data Validation and Usability

v. Data Review, Validation, and Verification Requirements

w. Validation and Verification Methods
x. Reconciliation with Data Quality Objectives

6. In order to provide quality assurance and maintain quality control with respect to all samples to be collected, Settling Defendants shall ensure the following:

a. Quality assurance and chain-of-custody procedures shall be performed in accordance with standard EPA protocol and guidance, as provided in the Region 2 Quality Assurance Homepage referred to above, and the guidelines as set forth in the Consent Decree.

b. Settling Defendants shall ensure that all laboratories they use for analysis of samples taken pursuant to the Consent Decree participate in an EPA or EPA-equivalent quality assurance/quality control (QA/QC) program. Settling Defendants shall only use laboratories that have a documented Quality System which complies with ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*, (American National Standard, January 5, 1995), and *EPA Requirements for Quality Management Plans* (QA/R-2), (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program (NELAP) as meeting the Quality System requirements.

c. The laboratory to be used must be specified. If the laboratory participates in the Contract Laboratory Program (CLP), for the analyses to be performed for this investigation, then project specific Performance Evaluation (PE) samples will not be required. If the proposed laboratory does not participate in the CLP, then PE samples must be analyzed to demonstrate the capability to conduct the required analysis prior to being approved for use. Once a non-CLP laboratory has been selected, the laboratory should submit a copy of their Laboratory Quality Assurance Program Plan to EPA for review and approval.

For any analytical work performed at a non-CLP laboratory, including that done in a fixed laboratory, in a mobile laboratory, or in on-site screening analyses, Settling Defendants must submit to EPA a "Non-CLP Superfund Analytical Services Tracking System"

form for each laboratory utilized during a sampling event, within thirty (30) days after receipt of the analytical results. Upon completion, such documents shall be submitted to the EPA Project Coordinator, with a copy of the form and transmittal letter to:

Regional Sample Control Center Coordinator
EPA Region 2
Division of Environmental Science & Assessment
2890 Woodbridge Avenue, Bldg. 209, MS-215
Edison, NJ 08837

d. The laboratory utilized for analyses of samples must perform all analyses according to accepted EPA methods as documented in the *Contract Lab Program Statement of Work for Organic Analysis*, (OLM04.3) or the latest revision, and the *Contract Lab Program Statement of Work for Inorganic Analysis*, (ILM05.3) or the latest revision, or other EPA approved methods. Information on the Superfund Analytical Services/Contract Laboratory Program is available at:
http://www.epa.gov/superfund/programs/clp/methods.htm

e. Unless indicated otherwise in the approved QAPP, all data will be validated upon receipt from the laboratory.

f. Unless indicated otherwise in the approved QAPP, submission of the validation package (checklist, report, and Form I containing the final data) to EPA, prepared in accordance with the provisions of Subparagraph h., below.

g. Assurance that all analytical data that are validated as required by the QAPP are validated according to the procedures stated in the *EPA Region II Contract Lab Program Organics Data Review and Preliminary Review* (SOP #HW-6, Revision 12), dated March 2001, or the latest revision, and the *Evaluation of Metals Data for the Contract Laboratory Program* (SOP #HW-2, Revision 11), dated January 1992 or the latest revision, or EPA-approved equivalent procedures. Region 2 Standard Operating Procedures are available at: http://www.epa.gov/region02/desa/hsw/sops.htm

h. Unless indicated otherwise in the approved QAPP, Settling Defendants shall require deliverables equivalent to CLP data packages from the laboratory for analytical data. Upon EPA's request, Settling Defendants shall submit to EPA the full

documentation (including raw data) for this analytical data. EPA reserves the right to perform an independent data validation, data validation check, or qualification check on generated data.

i. Settling Defendants shall insert a provision in its contract(s) with the laboratory utilized for analyses of samples, which will require granting access to EPA personnel and authorized representatives of EPA for the purpose of ensuring the accuracy of laboratory results related to the Site.

j. Upon request, Settling Defendants shall allow split or duplicate samples to be taken by EPA and the State or their authorized representatives. Settling Defendants shall notify EPA not less than twenty-eight (28) days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow Settling Defendants to take split or duplicate samples of any samples it takes as part of EPA's oversight of Settling Defendants implementation of the Work.

k. Settling Defendants shall submit to EPA three (3) copies of the results of all sampling and/or tests or other data obtained or generated by or on behalf of Settling Defendants with respect to the Site and/or the implementation of the Consent Decree within ten (10) days of the date when those results or data become available to Settling Defendants, unless EPA agrees otherwise.

B. Health and Safety Contingency Plan (HSCP)

A Health and Safety Contingency Plan (HSCP) for all activities performed under the Consent Decree shall be developed by Settling Defendants to address the protection of public health and safety and the response to contingencies that could impact public health, safety, and the environment. The HSCP shall satisfy the requirements of the *Occupational Safety and Health Guidance for Hazardous Waste Site Activities*, (June 1990, DHHS NIOSH Publication No. 90-117), and the Occupational Safety and Health Administration, U.S. Department of Labor (OSHA) requirements cited below:

1. All site activities shall be performed in such a manner as to ensure the safety and health of personnel so engaged. All site activities shall be conducted in accordance with all pertinent general industry (29 CFR Part

1910) and construction (29 CFR Part 1926) OSHA standards, and EPA's *Standards Operating Safety Guides* (OSWER, 1988), as well as any other applicable State and municipal codes or ordinances. All site activities shall comply with those requirements set forth in OSHA's final rule entitled *Hazardous Waste Operations and Emergency Response*, 29 CFR '1910.120, Subpart H.

2. The HSCP shall include, at a minimum, the following elements:

a. Plans showing the location and layout of any temporary facilities to be constructed on or near the Site;

b. Description of the known hazards and evaluation of the risks associated with the Site and the potential health impacts related to the site activities;

c. List of key personnel and alternates responsible for site safety, response operations, and protection of the public;

d. Description of levels of protection (based on specified standards) to be utilized by all personnel;

e. Delineation of Work, decontamination, and safe zones, and definitions of the movement of zones;

f. Description of decontamination procedures for personnel and equipment, and handling and removal of disposable clothing or equipment;

g. Incidental emergency procedures which address emergency care for personnel injuries and exposure problems, and containment measures. These procedures shall include evacuation routes, internal and external communications procedures for response to fire, explosion, or other emergencies, the name of the nearest hospital and the route to that hospital. Local agencies with the capability to respond to emergencies shall be identified and their capabilities shall be described. A description of the procedures for informing the community of these measures shall be outlined.

h. Description of the personnel medical surveillance program in effect;

i. Description of monitoring for personnel safety;

j. Description of routine and special personnel training programs; and

k. Description of an air monitoring program to determine concentrations of airborne contaminants to which workers on-site and persons near the site boundary may be exposed. The results of work-zone air monitoring may be used as a trigger for implementing site-boundary air monitoring, additional control measures, and/or cessation of work.

C. Description of Remedial Design Tasks

The RD Work Plan shall include a detailed description of all other RD tasks (see Sections IV. and V., above) to be performed, along with a schedule for performance of those tasks. Such tasks shall include, at a minimum, the preparation of the RD Reports required by Section VII., below, and tasks necessary to ensure compliance with ARARs, as outlined herein and in the ROD. The RD Work Plan shall include an outline of the requirements of the RD Reports.

1. Access and Other Approvals

The RD Work Plan shall include descriptions of any approvals which Settling Defendants will need to comply with the Consent Decree, with the exception of those approvals needed from the EPA. This description shall detail how such approvals will be sought, and shall include a schedule for obtaining all necessary approvals. Such approvals shall include the consent of owners of property at or near the site regarding access to conduct sampling, monitoring, remediation, restoration or other activities, in accordance with the Consent Decree, and approval from any off-Site facility accepting waste materials from the Site. This description shall be amended if subsequent approvals are required.

2. Remedial Design Schedules, Draft Schedule for Remedial Action, and Monitoring

The RD Work Plan shall include a schedule covering all RD activities, including but not limited to, the submittal of the RD Reports listed in Section VII., below. The RD Work Plan shall also include a draft schedule for RA and monitoring activities. The

schedule shall be in the form of a task/subtask activity bar chart or critical path method sequence of events.

3. The draft schedule for RA and monitoring activities may be revised during the remedial process, subject to the EPA's approval.

4. The RD schedule shall provide for completion and submittal to EPA of the Final RD Report within six (6) months of EPA's written notification of approval of the RD Work Plan.

5. The draft schedule for the RA shall provide for completion and submittal to EPA of the Interim RA Report (see Section X.D.) within twelve (12) months of EPA's written notification of approval of the RA Work Plan.

VI. APPROVAL OF REMEDIAL DESIGN WORK PLAN

EPA will either approve the RD Work Plan, or require modification of such plan, in accordance with the procedures set forth in Section XI of the Consent Decree. Settling Defendants shall implement the EPA-approved RD Work Plan in accordance with the schedules contained therein.

VII. REMEDIAL DESIGN

Settling Defendants shall perform the RD activities in conformance with the RD Work Plan approved by the EPA and within the time frames specified in the RD schedule contained therein. The RD shall include the preparation of a Preliminary and a Final RD Report.

A. Preliminary and Final Remedial Design Reports

The reports shall be submitted to the EPA and NYSDEC in accordance with the schedule set forth in the approved RD Work Plan. Each RD report shall include a discussion of the design criteria and objectives, with emphasis on the capacity and ability to meet design objectives successfully. Each report shall also include the plans and specifications that have been developed at that point in time, along with a design analysis. The design analysis shall provide the rationale for the plans and specifications, including results of all sampling and testing performed, supporting calculations and documentation of how these plans and specifications will meet the requirements of the ROD and shall provide a

discussion of any impacts these findings may have on the RD. The design reports shall also include the following items (to the extent that work has been performed regarding the items):

1. A technical specification for photographic documentation of the remedial construction work;

2. A discussion of the manner in which the RA will achieve the Performance Standards;

3. A plan for obtaining institutional controls (*i.e.*, deed restrictions); and

4. A draft schedule for RA activities, and a preliminary schedule for operation and monitoring activities.

B. Additional Preliminary Remedial Design Report Requirements

The preliminary RD report shall include; the design criteria, a discussion and evaluation of the RD activities listed under Section IV., above, and their results, preliminary design drawings showing general arrangement of all RA work planned, and, to the extent available, items C.1. and C.2 below.

C. Additional Final Remedial Design Report Requirements

The final RD report shall include final plans and specifications, and, shall also include:

1. A discussion of the manner in which the design components detailed in Section IV., above, for the RA are considered in the design;

2. Table of Contents, as necessary, for the specifications, including a listing of items from the Construction Specifications Institute master format that are expected to be included in the construction specifications. This master format is presented in the Construction Specifications Institute's *Manual of Practice*, 1985 edition, available from the Construction Specifications Institute, 601 Madison Street, Alexandria, Virginia 22314;

3. Engineering plans representing an accurate identification of existing site conditions and an illustration of the work proposed.

Typical items to be provided on such drawings include, at a minimum, the following:

a. Title sheet including at least the title of the project, a key map, the name of the designer, date prepared, sheet index, and EPA/NYSDEC Project identification;

b. All property data including owners of record for all properties within 200 feet of the Site;

c. A site survey including the distance and bearing of all property lines that identify and define the project site;

d. All easements, rights-of-way, and reservations;

e. All buildings, structures, wells, facilities, and equipment (existing and proposed) if any;

f. A topographic survey, including existing and proposed contours and spot elevations for all areas that will be affected by the remedial activities, based on U.S. Coast and Geodetic Survey data;

g. All utilities, existing and proposed;

h. Location and identification of all significant natural features including, *inter alia*, wooded areas, water courses, wetlands, flood hazard areas, and depressions;

i. Flood hazard data and 100-year and 500-year flood plain delineation;

j. North arrow, scale, sheet numbers and the person responsible for preparing each sheet;

k. Decontamination areas, staging areas, borrow areas and stockpiling areas;

l. Miscellaneous detail sheets;

m. Definitions of all symbols and abbreviations;

n. A specification for a sign at the Site. The sign should describe the project, the name of the contractor performing

the RD/ RA work or the PRP Group, state that the project is being performed under EPA oversight, and provide EPA contact for further information;

o. Site security measures;

p. Roadways; and

q. Electrical, mechanical, and/or structural plans, as required.

4. Survey work that is appropriately marked, recorded and interpreted for mapping, property easements and design completion;

5. Drawings, as necessary, of all proposed equipment, improvements, details and all other construction and installation items to be developed in accordance with the current standards and guidelines of the State of New York. Drawings shall be of standard size, approximately 24" x 36". A list of drawing sheet titles will be provided;

6. Any value engineering proposals;

7. An O&M Plan which shall include the elements of the SMP. The O&M Plan shall be prepared in accordance with the Superfund Remedial Design and Remedial Action Guidance, OSWER Directive 9355.0-4A. The O&M Plan shall also include, but not be limited to, the following:

   a. a description of the personnel requirements, responsibilities, and duties, including a discussion for training, lines of authority;

   b. a description of all construction-related sampling, analysis, and monitoring to be conducted under the Consent Decree; and

   c. a description of all RA-related monitoring requirements.

8. A Construction Quality Assurance Project Plan (CQAPP), which shall detail the approach to quality assurance during construction activities at the Site, shall specify a quality assurance official (QA Official), independent of the RA Contractor, to conduct a quality assurance program during the construction phase of the project.

The CQAPP shall address sampling, analysis, and monitoring to be performed during the remedial construction phase of the Work. Quality assurance items to be addressed include, at a minimum, the following:

a. Inspection and certification of the Work;

b. Measurement and daily logging;

c. Field performance and testing;

d. Post-construction drawings; and

e. Testing of the RA Work (*e.g.*, post-excavation sampling) to establish whether the design specifications have been attained.

9. A report describing those efforts made to secure access and institutional controls and to obtain other approvals and the results of those efforts (see Sections IV.G., and V.C., above). Legal descriptions of property or easements to be acquired shall be provided, along with the final engineer's construction cost estimate.

10. A plan for implementation of construction and construction oversight.

11. A method for selection of the construction contractor(s).

12. A final engineer's Construction cost estimate.

13. A proposed schedule for implementing all of the above.

VIII. APPROVAL OF REMEDIAL DESIGN REPORTS

A. EPA will review and comment on the RD Reports. Settling Defendants shall make those changes required by the EPA's comments/modifications in accordance with the procedures set forth in Section XI of the Consent Decree.

B. Changes required by EPA's comments on the Preliminary RD Report shall be made in the Final RD Report.

C. EPA will either approve the Final RD Report or require modifications, in accordance with the procedures set forth in Section XI of the Consent Decree.

IX. REMEDIAL ACTION

A. Within forty-five (45) days of EPA's approval of the Final Design Report, Settling Defendants shall notify EPA in writing of the name, title, and qualifications of any construction contractor proposed to be used in carrying out work under the Consent Decree. With respect to any proposed construction contractor, Settling Defendants shall demonstrate that the proposed construction contractor has a quality system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs (American National Standard, January 5, 1995), by submitting a copy of the proposed construction contractor's QMP. The QMP should be prepared in accordance with the specifications set forth in "EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA. EPA shall thereafter provide written notice of the name(s) of the contractor(s) it approves, if any. Settling Defendants may select any approved contractor from that list and shall notify EPA of the name of the contractor selected within twenty-one (21) days of EPA's designation of approved contractors. If at any time Settling Defendants proposes to change the construction contractor, Settling Defendants shall notify EPA and shall obtain approval from EPA as provided in this paragraph, before the new construction contractor performs any work under the Consent Decree. If EPA disapproves of the selection of any contractor as the construction contractor, Settling Defendants shall submit a list of contractors that would be acceptable to them to EPA within thirty (30) days after receipt of EPA's disapproval of the contractor previously selected.

B. Within sixty (60) days of the award of the RA contract, Settling Defendants shall submit an RA Work Plan for remedial construction activities. The RA Work Plan shall comply with CERCLA and relevant EPA guidance, including the EPA document entitled *Guidance on Oversight of Remedial Designs and Remedial Actions performed by Potentially Responsible Parties*, (OSWER directive 9355.5-01, EPA/540/g-90-001), dated April 1990 and shall be in conformance, *inter alia*, with the *Superfund Remedial Design and Remedial Action Guidance*,

dated June 1986, as well as other EPA guidance documents. The RA Work Plan shall include, at a minimum, the following items:

1. A Remedial Action Management Plan (RAMP) for RA activities. The RAMP shall include, at a minimum, the following items:

    a. Tentative identification of the RA Project Team (including, but not limited to the Construction Contractor).

    b. A final schedule for the completion of the RA and all major tasks therein, as well as a schedule for completion of required plans, and other deliverables (see Section V. C., above).

    c. Methodology for implementation of the Construction Quality Assurance Project Plan (developed during the RD).

    d. Procedures and plans for the decontamination of construction equipment and the disposal of contaminated materials.

    e. Methods for satisfying any permitting requirements.

    f. Discussion of the methods by which construction operations shall proceed. Discussion shall include the following:

        (1) Timing of and manner in which activities shall be sequenced;

        (2) Preparation of the Site including security, utilities, decontamination facilities, construction trailers, and equipment storage;

        (3) Coordination of construction activities;

        (4) Site maintenance during the RA;

        (5) Coordination with local authorities regarding contingency planning and potential traffic obstruction; and

(6) Entry and access to the Site during the construction period(s) and periods of inactivity, including provisions for decontamination, erosion control, and dust control.

(7) Identification of all off-Site facilities to which site material will be sent, and description, for each facility, of the proposed materials for disposal and method of management of those materials.

(8) Implementation of the photograph/slide plan to record the progress of the remedial construction work.

g. Discussion of construction quality control, including:

(1) Methods of performing the quality control inspections, including when inspections should be made and what to look for;

(2) Control testing procedures for each specific test. This includes information which authenticates that personnel and laboratories performing the tests are qualified and the equipment and procedures to be used comply with applicable standards;

(3) Procedures for scheduling and managing submittals, including those of subcontractors, off-Site fabricators, suppliers, and purchasing agents; and

(4) Reporting procedures including frequency of reports and report formats.

h. Procedures to be used to determine whether performance standards are being achieved, and reporting procedures and frequency for results of such testing.

2. A Quality Assurance/Quality Control Project Plan (QAPP) for the Remedial Construction phase of the Work shall be prepared consistent with EPA *Requirements for Quality Assurance Project Plans for Environmental Data Operations*, (EPA QA/R-5, March 2001) (see Section V. A., above, for QAPP requirements).

3. An updated HSCP for the RA phase of the Work (see Section V. B., above, for HSCP requirements). The HSCP shall address health and safety measures to be implemented and observed by construction personnel, as well as recommended health and safety measures for the adjacent community and general public. The HSCP shall include the name of the person responsible in the event of an emergency situation, as well as the necessary procedures that must be taken in the event of an emergency, as outlined in the Consent Decree.

4. A Monitoring Plan for carrying out the monitoring requirements of the RA.

C. Approval of Remedial Action Work Plan

EPA will either approve the RA Work Plan or require modification of it in accordance with the procedures set forth in Section XI of the Consent Decree.

D. Performance of Remedial Action

1. Within thirty (30) days of EPA's written approval of the RA Work Plan, Settling Defendants shall initiate and perform the remedial action in accordance with the RA Work Plan and the approved Final Design Report, which includes the approved RA schedule.

2. During performance of the RA, Settling Defendants may identify and request EPA approval for field changes to the approved RA Work Plan, Final Design Report and RA schedule, as necessary, to complete the work. EPA will approve, disapprove, or require modification of any requests for field changes in accordance with the procedures set forth in Section XI of the Consent Decree.

E. Operation and Maintenance Manual

1. No later than thirty (30) days prior to the scheduled completion date of the remedial construction phase, Settling Defendants shall submit to the EPA an O&M Manual which will supplement the O&M Plan submitted pursuant to Section VII.C.7 above, by addressing the O&M requirements for the remedy as actually constructed. The O&M Manual shall conform to the EPA guidelines contained in Considerations for Preparation of Operation and Maintenance Manuals, EPA 68-01-0341.

2. The O&M Manual shall include, at a minimum, the following:

   a. The elements of the SMP.

   b. An amended QAPP consistent with Section VI.A., above.

   c. An HSCP for O&M activities consistent with Section VI.B., above.

   d. A discussion of potential problems and remedies for such problems.

   e. A schedule for equipment replacement.

   f. An O&M and monitoring schedule.

3. EPA will either approve the O&M Manual or require modification of it, in accordance with the procedures set forth in the Consent Decree.

4. Proposed modifications to the approved O&M Manual may be submitted to EPA for consideration upon completion of construction or thereafter if Settling Defendants can demonstrate that such modifications would enhance and/or maintain the environmental monitoring programs.

5. EPA will approve, disapprove, or require modifications of the request for modification of the O&M Manual in accordance with the procedures set forth in the Consent Decree.

X. PRE-FINAL AND FINAL INSPECTIONS, INTERIM REMEDIAL ACTION REPORT, REMEDIAL ACTION REPORT, NOTICE OF CONSTRUCTION COMPLETION

A. At least fourteen (14) days prior to the completion of construction, Settling Defendants and their contractor(s) shall be available to accompany EPA personnel and/or their representatives on a pre-final inspection. The pre-final inspection shall consist of a walkover of the Site to determine the completeness of the construction and its consistency with the RD Reports, the Consent Decree, the ROD and applicable federal and state laws, rules, and regulations.

B. Following the pre-final inspection, EPA will either specify the necessary corrective measures to the construction phase of the RA, or determine that construction is complete and is consistent with the ROD, this SOW, and the Consent Decree. If EPA requires corrective measures, Settling Defendants shall undertake the corrective measures according to a schedule approved by EPA. Within fourteen (14) days after completion of the construction of the corrective measures, Settling Defendants and their contractor(s) shall be available to accompany EPA personnel or their representatives on an inspection as provided for in the preceding paragraph. Said inspection will be followed by further directions and/or notifications by EPA as provided above in this paragraph. Within forty-five (45) days of EPA's determination that construction is complete and is consistent with the ROD, this SOW, and the Consent Decree, the Settling Defendants shall submit an Interim RA Report, as set forth in Subsection D., below.

C. Within twenty-one (21) days of the date that Settling Defendants conclude that they have met the Performance Standards specified in the ROD and this SOW, Settling Defendants shall schedule and conduct a final inspection to be attended by Settling Defendants, EPA, NYSDEC, and/or their respective representatives. The final inspection will consist of a walk-through of the project to determine the completeness of the RA and its consistency with the ROD, this SOW, and the Consent Decree. EPA may direct Settling Defendants to correct any deficiencies identified during the inspection. Settling Defendants shall implement the tasks necessary to correct any deficiencies in accordance with the specifications and schedules established by EPA. Within forty-five (45) days of EPA's determination that Performance Standards and cleanup objectives have been attained, as specified in this paragraph, the Settling Defendants shall submit a Final RA Report, as set forth in Subsection D., below.

D. The Interim and Final RA Reports, set forth in Subsections B and C, above, shall include the following sections:

1. Introduction

   a. Include a brief description of the location, size, environmental setting, and operational history of the Site.

   b. Describe the operations and waste management practices that contributed to contamination of the Site.

c. Describe the regulatory and enforcement history of the Site.

d. Describe the major findings and results of site investigation activities.

e. Describe prior removal and remedial activities at the Site.

2. Background

a. Summarize requirements specified in the ROD. Include information on the cleanup goals, institutional controls, monitoring requirements, operation and maintenance requirements, and other parameters applicable to the design, construction, operation, and performance of the RA.

b. Provide additional information regarding the basis for determining the cleanup goals, including planned future land use.

c. Summarize the RD, including any significant regulatory or technical considerations or events occurring during the preparation of the RD.

d. Identify and briefly discuss any ROD amendments, explanation of significant differences, or technical impracticability waivers.

3. Construction Activities

Provide a step-by-step summary description of the activities undertaken to construct and implement the RA (*e.g.*, mobilization and site preparatory work; associated site work; and sampling activities).

4. Chronology of Events

a. Provide a tabular summary that lists the major events for the RA and associated dates of those events, starting with ROD signature.

b. Include significant milestones and dates, such as, RD submittal and approval; ROD amendments; mobilization and construction for the remedy; monitoring and sampling

events; final sampling and confirmation-of-performance results; required inspections; demobilization; and startup of post-construction operation & maintenance activities.

5. Performance Standards and Construction Quality Control

   a. Describe the overall performance of the construction in terms of comparison to Performance Standards.

   b. Provide an explanation of the approved construction quality assurance and construction quality control requirements or cite the appropriate reference for this material. Explain any substantial problems or deviations.

   c. Provide an assessment of the performance data quality, including the overall quality of the analytical data, with a brief discussion of QA/QC procedures followed, use of a QAPP, comparison of analytical data with data quality objectives.

6. Final Inspection and Certifications

   a. Report the results of the various RA contract inspections, and identify noted deficiencies.

   b. Briefly describe adherence to health and safety requirements while implementing the RA. Explain any substantial problems or deviations.

   c. Summarize details of the institutional controls (*e.g.*, the type of institutional control, who will maintain the control, who will enforce the control).

   d. Describe results of pre-certification inspection. This section shall include a certification statement, signed by a responsible corporate official of one or more of the Settling Defendants or by the Settling Defendants Project Coordinator, which states the following: "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information,

including the possibility of fine and imprisonment for knowing violations."

7. Summary of Project Costs

   a. Provide the actual final costs for the project. If actual costs are not available, provide estimated costs.

   b. Provide the costs previously estimated in the ROD for the selected remedy, including RA capital costs. Adjust the estimates to the same dollar basis year as the actual project costs, and provide the index used.

   c. Compare actual RA costs to the adjusted ROD estimates. If outside the range of -30 to +50 percent, explain the reasons for differences.

   d. Refer the reader to the Appendix for a detailed breakdown of costs.

8. Observations and Lessons Learned

   Provide site-specific observations and lessons learned from the project, highlighting successes and problems encountered and how they were resolved.

9. Contact Information

   Provide contact information (names, addresses, phone numbers, and contract/reference data) for the major design and remediation contractors, as applicable.

10. Appendices: Cost and Performance Summary

    a. The specific parameters for documenting cost and performance information are presented in the *Guide to Documenting and Managing Cost and Performance Information for Remediation Projects*, EPA 542-B-98-007.

    b. Identify the matrix characteristics and site conditions that most affected the cost and performance, the corresponding values measured for each characteristic or condition, and

the procedures used for measuring those characteristics or conditions.

c. Identify the operating parameters specified by the remediation contractor that most affected the cost and performance, the corresponding values measured for each parameter, and the procedures used for measuring those parameters.

d. Provide a detailed breakout of the actual RA capital costs.

e. Provide supplemental information in appendices to the RA Report. These could include a map of the Site, supplemental performance information, and a list of references.

E. EPA will approve the Draft RA Report, thus making it the Final RA Report, require modifications, and/or require corrective measures to fully and properly implement the RA(s), in accordance with Subsection X.B. or C., above.

XI. PERFORMANCE OF CONTINUED OPERATION OF THE REMEDIAL ACTION

A. Upon EPA's approval of the Draft Remedial Action Report (see Section XI. E., above), Settling Defendants shall continue remedial action and monitoring activities in accordance with the approved O&M Manual and pursuant to the schedule included therein.

B. Proposed modifications to the approved RA Implementation, O&M, sampling, monitoring and Performance Evaluation Plan may be submitted to EPA for consideration upon completion of construction or thereafter if Settling Defendant can demonstrate that such modifications would enhance and/or maintain the monitoring programs.

C. EPA will approve, disapprove, or require modifications of the request for modification of the RA Implementation, O&M, and Sampling Monitoring Plan in accordance with the procedures set forth herein.